Appendix H

Smart Storeroom Phase II

Demonstration Workload Savings Estimate

WORKLOAD SAVINGS ESTIMATES

RECEIPTS:

The RFDC systems was used to capture all 115 receipts on the pier on 5 Nov 01. Scanning barcoded information took the same amount of time whether the RFDC or RFID scanners were utilized. The same estimates for scanning the required information into the RFID systems apply, so the RFDC system results are representative of all processing times.

Ninety receipts were captured by scanning the barcode. The remaining twenty-five documents were manually entered into the scanner. It took approximately eight seconds per document to scan the barcode information. It took an additional thirty seconds per document to manually enter the remaining twenty-five documents.

> 90 * 8 seconds = 720 seconds or 12 minutes.

> 25 * 30 seconds = 750 seconds or 12.5 minutes.

> 12 minutes + 12.5 minutes = 24.5 minutes

Supply Support personnel took an additional three-to-five minutes per document to manually enter the receipt information into SNAP.

> 115 * 3 minutes = 345 minutes or 5.75 hours.

> 115 * 5 minutes = 575 minutes or 9.58 hours.

Conclusion: Had there been a true software interface with SNAP II, the receipt processing would have been completed on the pier in approximately thirty minutes saving an additional six-to-10 hours of manual data entry.

Estimate: Assuming a conservative one hundred receipts per week, document processing time saved using RF technology equates to 260-433 man-hours per year.

> 100 receipts * 52 weeks = 5200 receipts
> 52 * 5.00 hours = 260 hours
> 52 * 8.33 hours = 433 hours

ISSUES:

Using the RFDC system, forty-four separate DTO transactions were captured by scanning the barcode information on the 1348-1A and a simulated ID barcode to identify the receiving division. An additional 38 DTO items were issued using the RFID inductive system.

Conclusion: Between the RFDC and RFID inductive tags, a total of eighty-two issues were made. Applying the three-five minute document processing time in SNAP, it is realistic to conclude Supply Support personnel would take 4.4-7.3 hours to process these issues into SNAP. Assuming 100 issues per week, this equates to 260-433 man-hours per year as calculated in Receipts above.

> 88 Issues * 3 minutes = 264 minutes or 4.4 hours.
> 88 Issues * 5 minutes = 440 minutes or 7.3 hours.

STOWS:

Fifty-five stock requisitions were stowed. It took an average of five minutes per item or 4.58 hours to enter all stowage information into SNAP.

> 55 Stows * 5 minutes = 275 minutes or 4.58 hours.

Estimate: Assuming one hundred stows per week, this equates to 433 manhours per year just for document processing into SNAP.

> 100 Stows * 5 minutes = 500 minutes or 8.3 hours.
> 52 Weeks * 8.3 hours = 433 hours.

INVENTORIES:

The only physical inventory conducted was in the DLR Storeroom. The RF team inventoried all DLRs in the DLR storeroom (242). This effort was combined with applying the tags, so the estimated inventory time is 2.5 manhours times 3 personnel or 7.5 manhours or 1.8 minutes per DLR excluding manual data entry into SNAP.

Using a conservative estimate of 2 minutes per item inventoried, the following estimate is determined.

> 1000 DLRs * 2 minutes = 2000 minutes or 33.33 hours

Adding another 2 minutes per DLR for manual entry into SNAP, the total inventory time is 67 hours not including count discrepancies.

If the RFID emitter system provides continuous visibility of 97% of 1000 DLRs, the saving in manhours is estimated at 64.67 hours per DLR inventory.

970 DLRs * 4 minutes = 3880 minutes or 64.67 hours.

Physical follow-up on 3% of the DLRs is still required.

30 DLRs * 4 minutes = 120 minutes or 2 hours.

In addition, using 3484 hours as an afloat man-year equivalent, an estimated 1161 hours are saved (one-third the DLR SK's inventory management time) due to the RFID emitter system.

Using the same 2 minutes for physical inventory of each non-DLR item and 2 minutes for manual entry, the following estimate is provided for the RFDC system. In this case, each item must be scanned. However, the manual data entry is eliminated. 100 inventory items will be used for calculation purposes.

100 items * 2 minutes = 200 minutes or 3.33 hours

If 10,000 items are inventoried per year, the manhour savings estimate equates to:

10000/100 = 100 * 3.33 hours = 333 manhours/year

Annual Manhour Savings Estimate:

Receipts:	260-433 hours
Stows:	433 hours
Issues:	260-433 hours
Inventories:	333 hours Non-DLR
	65 hours DLR
DLR SK:	1161 hours

Estimated total annual manhour savings equates to 2512-2858 manhours/year. Using 3483 hours as a man-year equivalent, this equates to a savings of **.72-.82 manyears**. Using the DOD composite rate for E5 ($22.44/hr), a manyear equals $78,181.00. The manyear savings in dollars ranges from $56,290-$64,108. Personnel utilization and actual business process execution differs on each ship, so this conservative estimate is provided as a guide.